Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

DANGERS LURKING IN WOOD-PILES.

BY LOUIS WINDMULLER.

It is known that fires occur more frequently in New York City than in London; but that the value of property annually destroyed is tenfold greater here than it is abroad is not adequately appreciated. Losses by fire equal twenty-five cents *per capita* of the population in France and Germany, thirty cents in Great Britain and three dollars in this country, an annual aggregation of two hundred and fifty million dollars. Almost the whole of this amount is paid by the underwriters who have insured the property. The individuals who buy their policies should realize that premiums correspondingly high must reimburse for losses the companies who issue the policies. These premiums, being almost ten times greater here than they are in Europe, constitute an onerous tax on every person who is compelled to insure property to protect either himself or his creditors.

The chief cause for the immense difference in the cost of insurance in Europe and America is the inflammable material and flimsy composition of the greater part of our structures. Nine-tenths of all American dwellings continue to be built wholly or chiefly of timber, and wood is used in all other buildings to some extent. Early settlers found an abundance of the choicest qualities of this material when they cleared the virgin forests. They first learned to use it for log cabins, later for commodious houses. In the building of the ten million frame houses which exist in this country the supplies of the best timber have naturally been reduced, and as one species after another has become exhausted it has been replaced by cheaper, less suitable varieties. Brittle hemlock has superseded pine; resinous cypress is substituted for walnut; and these inferior grades are apt to be employed, before they are seasoned, in the composition of important structures.

Many cots are still covered with shingles which may be ignited by a stray spark from a passing locomotive. In the twinkling of an eye the blaze spreads through hollow partitions and often dooms the hovel before the wretched tenants can save their lives.

In the erection of the solid buildings which rise within our cities little care has been taken in the selection of the requisite material, insufficient attention has been paid to the influence which the changes of temperature must cause, and in some cases the safety of the foundation itself has been disregarded. Our people were proud of the palatial warehouses in which Chicago merchants traded; yet these lofty stores, built of iron and limestone, considered impregnable to flames, burned like tinder when an upset candle ignited the loose straw of a stable and started, in October, 1871, a conflagration which threatened the Queen of our West with ruin. Within four-and-twenty hours property to the value of two hundred millions was consumed by flames. Seventy Insurance Companies failed, never again to resume.

A similar misfortune befell Boston thirteen months later. Seven hundred "fire-proof" buildings, with solid walls of granite and iron, were destroyed with the seventy millions of merchandise they contained; this fire completed the ruin of some insurers who had survived the Chicago disaster.

Almost all large cities in the Union have had on some scale a similar experience. Every inch of the Parker Building in New York City inspired confidence; it had an excellent reputation for safety; yet, when it took fire, several firemen were killed and property worth two millions was destroyed. The property which was destroyed in 1904 in Baltimore, amounting to seventy millions, was chiefly contained in old-fashioned "solid" brick houses.

The solidity of European buildings, of the German especially, has been demonstrated by their durability. It took six years, from 1616 to 1622, to erect the town hall of Nürnberg; and a substantial period of time was consumed in the construction there, and in all other "Hansa" towns, of those magnificent residences which, like the Fugger house in Augsburg, were built for the merchant princes of three hundred years ago. They remain to this day ornaments of their respective bailiwicks; some Guildhalls, like the "Hôtel des Brasseurs," in Brussels, continue to serve the purpose for which they were constructed.

Neither the guns nor the torches of French invaders could annihilate the walls of Heidelberg Castle; lightning-bolts failed to demolish the tower. The foundations of this "German Alhambra," not finished until 1618, were laid six hundred years ago. Ruins as they are and have been since the reign of Louis XIV, they are likely to remain, for years to come, eloquent, though silent, witnesses to the beauty and strength of German architecture. Educated in the "Gymnasium Carolinum" of Münster, which was founded a thousand years ago by Charlemagne, the writer had occasion to admire the solid walls which surround that ancient school and which show no sign of decay. These architectural models were observed by the writer in his younger days; later in life he had opportunities to admire the castles of France, the churches of Italy and the strongholds of England.

But in Germany the construction of buildings is considered a more responsible vocation than it is elsewhere; architects cannot obtain the requisite license until they have graduated from a German university; they must obey the laws of their respective communities, and are liable for the proper performance of their contractors' duties.

The "Baupolizei," as the German Building Department is called, first requires that there be submitted to it, for approval, the plans of a proposed structure, with a copy of the contractor's specifications. The height must conform to the width of the street, the architecture to surrounding styles. After the municipal arbiter has passed the plans they must be submitted to the Councillor of State. When he also has approved them ground for the foundation may be broken. From that day until the "roof is raised" it remains under constant surveillance. Every part must conform strictly to the regulations; inspectors visit the structure while it is in course of erection almost daily and test the strength of every beam and of every stanchion. Oak may not be replaced by chestnut, nor pine by basswood; the framework must be filled with plaster to make it permanently solid; no ornament which may prejudice safety is permissible. The state authorities must approve the final report of municipal inspectors before the owner may take possession of his property.

Germans build deliberately, generally for their own occupancy. We erect houses with ill-advised rapidity. As we live without repose, so we build without rest. "*In Hast ohne Rast.*"

A majority of our houses are erected to be sold at the first opportunity; when the owner has disposed of them their fate ceases to interest him. And the completion of buildings we erect for occupancy by ourselves or by prospective tenants is hastened so as to render them productive at the earliest moment.

In suburbs where persons of moderate means, who are tired of sunless tenements, seek shelter cruel land-sharks provide cottages which at small expense they have erected within a few weeks to sell to the first eager customer. Finding he cannot hire, the home-seeker is persuaded to buy one of these gaudy snuggeries on the instalment plan. After he has entered into possession, it does not take him long to discover that appearances have deceived him. The roof leaks, the glazed tiles cover a smoky chimney, the iron pipes which connect his porcelain bath-tub with the sewer are already perforated, and all the ornaments he admired concealed, through an abundance of paint and putty, a multitude of the faults which abound in inferior grades of timber.

When we turn to large buildings in large cities we find many sky-scrapers, from fifteen to twenty-five stories high, which consist of steel frames filled with concrete, and covered by an outside curtain of stone; they are erected in the most approved manner within twelve months from the laying of their corner-stones. This celerity is accomplished by means of three shifts of skilful workmen, who constantly labor with the utmost zeal and the best implements—during the night by artificial light—to make the timely surrender feasible. Contractors who complete the work earlier than agreed upon receive a premium; while those who remain in arrears are fined for every day's delay. Although the erection of these structures is pushed on with a rapidity repugnant to the mind of the old school of architects, they have successfully withstood every attack of the fiery elements; in cases when their contents have been cremated their presence became a bar to the progress of a conflagration. A building of this class, which was constructed under such conditions as I have described, survived the Baltimore ordeal of February, 1904. When older structures had to succumb, at least two of these structures bore the test of both flames and earthquake in San Francisco in 1906. It is confidently expected that if not all, almost all, will be found equally staunch during any future conflagration, even though a proper inspection during their construction may be impossible. In reconstructing Messina in Sicily, which was recently destroyed by an earthquake, several large buildings of American steel construction are being erected.

The code of building rules of the National Board of American Fire Underwriters, of 1899, which has been generally accepted by building departments, prescribes, with similar sanitary regulations, an inspection as rigid as prevails in Germany. But these laws are frequently disregarded by our inspectors.

Some officials in busy towns, like New York and Chicago, claim that they are underpaid and overburdened. A thorough inspection of houses built with unusual celerity is difficult; but many overseers neglect a duty they can perform, and some have unblushingly offered, in consideration of a bribe, to overlook deficiencies which they have discovered.

In many small cities or villages building departments are unknown; scant attention is paid to the safety of structures in other towns where they exist. Owners must rely for proper inspection on their own scrutiny or that of their architects. When asked to insure properties in such a locality careful underwriters must send, for their examination, special agents who, in the absence of regular fire-fighters, are often compelled to decline the risk.

There are in almost all our cities "Department Stores" which contain under a single roof an extensive assortment of valuable merchandise; and some large cities embrace districts where the values concentrated within a comparatively small compass are immense. In the "dry-goods" section of New York City, between Broadway and the Hudson River, values to the extent of five hundred million dollars are concentrated between Barclay and Bleecker streets.

Numerous appliances have been devised to protect these aggregated values against destruction. The pressure of some three hundred pounds of water which has been made available by direct connection of pumping-stations at the rivers, through movable water-towers, is amongst these appliances the most effective. But so far this protection applies to New York, Boston and Philadelphia only. It will probably be introduced into all large cities which enjoy the advantage of extended water fronts with an unlimited supply of water. Other contrivances which diminish the fire danger consist of stand-pipes, prescribed for buildings more than eighty-five feet high, of water-tanks, watchmen and of automatic sprinklers combined with automatic alarms.

As all these measures lessen the fire risk, the premium for the insurance of property so protected is reduced, in proportion to the reduced risk, to about one-half of the ordinary premium.

The most practicable, at the same time the most expensive, of these measures is the automatic sprinkler equipment, which when properly installed pours water on the fire as soon as heat reaches the head of the device; it is combined with an alarm that gives firemen timely warning of the danger. This same appliance has reduced the cost of the mutual insurance of New England mills almost to the European standard. Mutual associations of property-owners in many other parts of the country have followed this example; they protect their property by the same devices and enjoy similar benefits. Although this protection would diminish the cost of insurance and the danger, some underwriters fail to call the attention of their clients to the advantage offered by this opportunity. They encourage the greater risk, because it is coupled with larger premiums; on the other hand, some shortsighted insurers are so penurious as to refuse the assumption of this wise expenditure.

The owners of a rope walk in Chelsea, Massachusetts, had refused to provide the sprinklers, without which the underwriters refused to insure their factory; they allowed their policies to lapse rather than incur the expense. The Standard Rope Company lost in consequence a hundred thousand dollars in the conflagration of 1908.

American docks are usually constructed of wood; often they are covered with combustible merchandise awaiting transportation. In June, 1900, some bales ignited on docks of the North German Lloyd in Hoboken, New Jersey; merchandise and docks were consumed by flames, and because neither tugs nor fire-boats could be found to haul them into the stream the steamers "Saale" and "Bremen" moored alongside were practically destroyed. Five millions of property and some lives were lost. Since then this company and other wealthy merchandise-carriers in Hoboken and Manhattan have rebuilt their docks of iron, have divided them into fire-proof compartments and decline to receive hazardous goods. But most of our docks continue to be inflammable.

The fire in East Boston, Massachusetts, in 1908, originated on the wooden wharves of the Boston and Albany Railroad Terminal, and destroyed several ships and warehouses. A similar fire, causing the loss of half a million, recently occurred on a dock in Galveston, Texas.

The contents of many offices have been consumed when careless writers flung a burning cigarette into their paper-basket. The indifference of some smokers is amazing; a match heedlessly thrown on to a heap of rubbish, which had been allowed to accumulate in the cellar, ignited a fire that destroyed Adams Express Building in 1904.

The storage of combustible material should be rigorously restricted and transgressors punished, as they are in other civilized communities. By the admission, contrary to law, of combustible substances to Tarrants' old drug-shop on Greenwich Street, New York, the entire building was, by their explosion, annihilated in 1900, and the property of the company, as well as a large portion of the property of their neighbors, was destroyed. Almost all underwriters who had insured Tarrants' neighbors refused to pay losses caused by the explosion, and were sustained by the courts in this refusal.

A fire policy in France insures not alone the client who pays for it, but it covers the property of his neighbors as well, because in case of a fire he is compelled to pay his neighbors' loss. This risk, called "*Le risque du voisin*," makes French householders very careful.

Underwriters make an effort to control electric apparatus, yet defective wires continue to threaten theatres and other buildings where electricity is largely used. The frequency of theatre fires demonstrates the inefficiency of electrical control. The conflagration of the Iroquois Theatre, likewise misrepresented as fire-proof, in Chicago, in December, 1903, which caused the death of some six hundred persons, originated in defective wiring.

Fireworks on the Fourth of July, bonfires on election days and Christmas trees at Yuletide are at their respective periods a menace. Petroleum when used to start the kitchen fire is a perpetual danger to households. Faulty construction of heaters has caused the destruction of many homes.

By constant vigilance and the imposition of severe penalties on malefactors, the number of incendiaries has been reduced.

In refusing to insure buildings they consider unsafe, or by exacting a prohibitive premium until they are safeguarded, our underwriters exercise a beneficent influence. But they have no jurisdiction over careless servants; they cannot control the vagaries of the American boy. Without the hearty co-operation of State and municipal authorities and public-spirited citizens our fire waste will continue, unless efforts to substitute fire-proof material for timber in our buildings become more generally successful. The successful use of reinforced concrete and terra-cotta for the filling of sky-scrapers should encourage a more extensive use of the same material in the construction of dwellings.

In hardness and durability concrete equals if it does not surpass the best stone. When timber became scarce, it was used as a substitute by the ancient Greeks and Romans. The continued existence of the ruins of their concrete temples erected several thousand years ago proves the strength of the substance.

The supply of good American cement and of concrete is inexhaustible. Large buildings have been erected of it in many cities and in some suburbs at a lower cost than that of other material which could have been obtained for them. This is especially true of the Pacific coast. Some of the finest villas were built of concrete in Buenos Ayres in Argentina. Concrete is supposed to be proof against moderate earthquakes. A great part of San Francisco has been rebuilt of reinforced concrete.

Passenger-barges of concrete ply on the rivers of France and Italy. Small dwellings of concrete have proven to be too expensive thus far, but Mr. Edison and others are making experiments which, if successful, will bring the cost of a good concrete suburban home within reach of the poor. Should they not succeed, American ingenuity must find some other substitute for timber. Without systematic efforts to cultivate suitable forest trees on a large scale, building timber will soon be too expensive for a poor man's home. Be it ever so humble, our laws protect him in the possession of his fireside. He is lord and master of his hut as much as the millionaire is of his castle, and he has the same right to repel the intrusion of unwelcome strangers. Why should we not help to safeguard him against the intrusion of a cruel element?

Our pretentious but combustible bungalows should be replaced by comfortable dwellings which will be impervious to fire as to water, and which will not be, like the old frame houses, in need of constant repairs.

LOUIS WINDMULLER.